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Docket No. 034299-268

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICANT: Aspar et al.
SERIAL NO.: 09/600,590
FILING DATE: July 19, 2000
TITLE: COMPLIANT SUBSTRATE IN PARTICULAR FOR DEPOSIT
BY HETERO-EPITAXIAL DEPOSITING
EXAMINER: Kruer, Kevin R
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ART UNIT: 1773

CERTIFICATE OF MAILING

I hereby certify that this paper is being deposited with the United States Postal Service as First Class Mail in an envelope addressed to: Mail Stop RCE Commissioner for Patents, P.O. Box 1450, Alexandria VA 22313-1450, on the date printed below:

Date: 10/14/05

Name: Karen A. Rogers
Karen A. Rogers

DECLARATION OF HUBERT MORICEAU UNDER 37 C.F.R. 1.132

Dear Sir:

I, Hubert Moriceau, being first duly sworn upon my oath, depose and state as follows:

1. I am an inventor of U.S. Patent Application Serial No. 09/600,590 ("the subject application"), filed on July 19, 2000.
2. The co-inventors of the present application are Michel Bruel, Eric Jalaguier, and Bernard ASPAR.
3. I am currently employed as a senior scientist at Commissariat à l'Energie Atomique (CEA).
4. All of my statements in this Declaration are accurate and true to the best of my knowledge and belief.

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5. As background information and as foundation for my statements in this Affidavit, I am an engineer from ENSPG and I have a Doctor of Philosophy degree in materials. I have accumulated over 25 years of experience in the field of materials and have worked at CEA/LETI for 10 years in the field of film transfer and more particularly in the field of Smart Cut technology. Thus, I am an expert in the field of ion implantations.
6. In the above-described professional position, I have become very familiar with the creation of microcavities produced by ion implantations. Microcavities (or bubbles) produced by ion implantations are created above a given dose for given ions. Thus, absent the proper dose for a given ion, implanting the ions does not necessarily imply the creation of microcavities.
7. I reviewed U.S. Patent Number 5,141,894 issued to Bisaro et al. ("Bisaro") filed July 20, 1990, entitled "Method For The Manufacture, By Epitaxy, Of Monocrystalline Layers Of Materials With Different Lattice Parameters" having a priority date of August 1, 1989. Bisaro teaches a sample being "subjected to an ion implantation of argon ions under 300 KeV of energy with 10^{15} ions per cm^2 . This implantations creates anchoring points for the dislocation." (Col. 6, lines 3-8).
8. I also reviewed U.S. Patent Number 5,374,564 issued to Bruel ("Bruel") filed September 15, 1992, entitled "Process For the Production Of Thin Semiconductor Material Films" having a priority date of September 18, 1991. This patent has a priority date two years after Bisaro and is discussed in the subject application on page 6, line 31 through page 8, line 2.
9. The Bruel patent is the base patent for the Smart Cut technology wherein a layer of microcavities produced by ion implantation is used. Bruel states that "for doses of approximately 10^{16} cm^{-2} , the implanted hydrogen atoms start to form bubbles, which are distributed in the vicinity of a plane parallel to the surface." (Col. 5, lines 17-23). This proves that microcavities are created only above a given dose for given ions.

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10. Bisaro teaches the implantation of ions such as "manganese, aluminum, silicon, chromium, iron, nickel, cobalt, copper, germanium, tin, selenium, tellurium, erbium, vanadium, beryllium, zinc, cadmium, boron, chlorine, arsenic, gallium, indium, phosphorous, lithium, gold, tungsten, carbon, titanium, silver, nitrogen, oxygen, sulphur, hydrogen, fluorine, bromium, or any types of ions capable of being implanted or of creating faults in the epitaxiated layer" (Col. 3, lines 38-46). Based upon my expert opinion, most of these ions were not known at the time of Bisaro invention, and are still not known, to create platelets nor microcavities and specially metallic ions like chromium, iron, nickel, cobalt, copper, tin, zinc or cadmium.

11. Thus, Bisaro does not teach to create microcavities to make a compliant substrate but "to create anchoring points for the dislocations" (col. 3, lines 47-48) or "to create a highly disturbed, or even amorphous, monocrystalline zone" (col. 4, lines 66-67).

12. For all the foregoing reasons, it is my expert opinion that the claims of the subject application describe a novel invention.

13. By my signature, I further declare that all statements made herein of my own knowledge are true, and that all statements made on information and belief are believed to be true; and further, that these statements are made with knowledge that willful false statements, and the like so made, are punishable by fine or imprisonment, or both, under Section 1001, Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Date: 13 octobre 05

Signature:

H. MoriceauCitizenship: FRANCE

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